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AMENDMENTS TO THE CLAIMS:

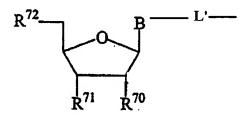
This listing of claims will replace all prior versions, and listings, of claims in the application.

LISTING OF CLAIMS:

Claims 1-69 (canceled)

Claim 70 (currently amended): A labeled nucleoside/tide or nucleoside/tide analog comprising a rhodamine dye conjugated by a linker (L') to a nucleoside/tide or nucleoside/tide analog (NUC), wherein:

the rhodamine is a rhodamine-type parent xanthene having attached to the xanthene C9 carbon a phenyl group that is further substituted with an ortho carboxy or ortho sulfonate group or a salt thereof, one to three substituted or unsubstituted aminopyridinium groups and a substituted or unsubstituted alkylthio[[,]] or arylthio group; and the nucleoside/tide or nucleoside/tide analog and linker taken together comprise the structure:



wherein:

B is a nucleobase selected from a purine, a 7-deazapurine, an 8-aza,7-deazapurine, a pyrimidine, a normal nucleobase and a common analog of a normal nucleobase;

L' is the linker;

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R⁷⁰ and R⁷¹, when taken alone, are each independently selected from hydrogen, hydroxyl and a moiety which blocks polymerase-mediated template-directed polymerization, or when taken together form a bond such that the illustrated sugar is 2',3'-didehydroribose; and

R⁷² is selected from hydroxyl, a phosphate ester having the formula:

$$-0\begin{bmatrix}0\\P\\O\end{bmatrix} & 0\\0\\0 & 0$$

where a is an integer from 0 to 2, and a phosphate ester analog, or a salt thereof.

Claim 71 (previously presented): The labeled nucleoside/tide or nucleoside/tide analog of claim 70 comprising the formula:

wherein:

Y is a rhodamine-type parent xanthene ring attached to the illustrated phenyl group at the xanthene C9 carbon;

 R^{22} , R^{23} , R^{25} , and R^{26} are independently selected from hydrogen and (C₁-C₆) alkyl;

 R^{24} , when taken alone, is (C_1-C_6) alkyl, or when taken together with R^{24} is (C_4-C_6)

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 C_{10}) alkyldiyl, (C_4 - C_6) alkyleno, (C_4 - C_6) heteroalkyldiyl and (C_4 - C_6) heteroalkyleno;

 R^{24} , when taken alone, is (C₁-C₆) alkyl, or when taken together with R^{24} is (C₄-

 C_{10}) alkyldiyl, (C_4 - C_6) alkyleno, (C_4 - C_6) heteroalkyldiyl and (C_4 - C_6) heteroalkyleno;

n is 1, 2, or 3;

S is sulfur;

 Z^1 is selected from (C₁-C₁₂) alkyldiyl, (C₁-C₁₂) alkyldiyl independently substituted with one or more of the same or different W¹ groups, (C₅-C₁₄) aryldiyl, and (C₅-C₁₄) aryldiyl independently substituted with one or more of the same or different W² groups;

 W^{1} is selected from -X, -R, =O, -OR, -SR, =S, -NRR, =NR, $-CX_{3}$, -CN, -OCN,

 $-SCN, -NCO, -NCS, -NO, -NO_2, =N_2, -N_3, -S(O)_2O^-, -S(O)_2OH, -S(O)_2R, -C(O)R,$

-C(O)X, -C(S)R, -C(S)X, -C(O)OR, $-C(O)O^{-}$, -C(S)OR, -C(O)SR, -C(S)SR,

-C(O)NRR, -C(S)NRR AND -C(NR)NRR;

 W^2 is selected from -R, -OR, -SR, -NRR, $-S(O)_2O^-$, $-S(O)_2OH$, $-S(O)_2R$,

 $-C(O)R, -C(O)X, -C(S)R, -C(S)X, -C(O)OR, -C(O)O^{\text{-}}, -C(S)OR, -C(O)SR, -C(S)SR, -C(S)SR,$

-C(O)NRR, -C(S)NRR and -C(NR)NRR;

L is a selected from a bond, (C_1-C_{12}) alkyldiyl, (C_1-C_{12}) substituted alkyldiyl, (C_6-C_{26}) arylalkyldiyl, -O-, -S-, -NR-, -C(O)O-, -C(O)NR-, $-NRS(O)_2-$, -NR-NR-, -NRC(O)O-, and -NRC(O)NR-;

R⁴⁶ is selected from -C(O)NR-, -C(O)O-, and -C(O)S-,

L' is selected from (C_1-C_{20}) alkyldiyl, (C_1-C_{20}) heteroalkyldiyl, (C_1-C_{20}) alkyleno, (C_1-C_{20}) heteroalkyleno, (C_6-C_{26}) arylalkyldiyl, (C_5-C_{20}) heteroarylalkyldiyl, and substituted forms thereof; and

NUC is a nucleoside/tide or nucleoside/tide analog;

each R is independently selected from hydrogen, (C₁-C₆) alkyl, (C₅-C₂₀) aryl, (C₆-C₂₆) arylalkyl, and (C₅-C₂₀) arylaryl; or when two R groups on the same nitrogen atom are taken together, those two R groups are (C₄-C₁₀) alkyldiyl or (C₄-C₁₀) alkyleno; and each X is independently a halogen.

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Claim 72 (previously presented): The labeled nucleoside/tide or nucleoside/tide analog of claim 71 wherein Y comprises the rhodamine-type parent xanthene ring structures:

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, and

and a salt thereof, wherein:

 R^1 and R^2 when taken alone, are independently hydrogen or (C_1-C_6) alkyl;

 R^3 and R^3 ' when taken alone, are independently selected from hydrogen, (C_1-C_6) alkyl, (C_5-C_{14}) aryl and (C_5-C_{14}) arylaryl, or when taken together is (C_4-C_6) alkyldiyl or (C_4-C_6) alkyleno, or when individually taken together with R^2 or R^4 is (C_2-C_6) alkyldiyl or (C_2-C_6) alkyleno;

 R^4 , when taken alone, is selected from hydrogen an (C_1-C_6) alkyl, or when taken together with R^3 or R^3 is (C_2-C_6) alkyldiyl or (C_2-C_6) alkyleno;

 R^5 , when taken alone, is selected from hydrogen and (C₁-C₆) alkyl, or when taken together with R^6 or $R^{6'}$ is (C₂-C₆) alkyldiyl or (C₂-C₆) alkyleno;

 R^6 and $R^{6'}$ when taken alone, are selected from hydrogen, (C_1-C_6) alkyl, (C_5-C_{14}) aryl and arylaryl, or when taken together are (C_4-C_6) alkyldiyl or alkyleno, or when individually taken together with R^5 or R^7 is (C_2-C_6) alkyldiyl or alkyleno;

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 R^7 , when taken alone, is selected from hydrogen and (C_1-C_6) alkyl, or when taken together with R^6 or $R^{6'}$ is (C_2-C_6) alkyldiyl or alkyleno;

R⁸, when taken alone, is selected from hydrogen and (C₁-C₆) alkyl;

 R^{10} , R^{11} , R^{12} , R^{13} , R^{14} , R^{15} , R^{16} , R^{17} , R^{18} , R^{19} , R^{20} and R^{21} are each independently selected from hydrogen and (C_1 - C_6) alkyl, or

when R¹⁰, R¹¹, R¹² and R¹³ taken together are (C₅-C₁₄) aryleno or (C₅-C₁₄) aryleno substituted with one or more of the same or different (C₁-C₆) alkyl, or when R¹⁸, R¹⁹, R²⁰ and R²¹ taken together are (C₅-C₁₄) aryleno or aryleno substituted with one or more of the same or different (C₁-C₆) alkyl; and R⁹ is the point of attachment to the xanthene C9 carbon.

Claim 73 (previously presented): The labeled nucleoside/tide or nucleoside/tide analog of claim 72 wherein R² when taken together with R³ or R³ is (C₂-C₆) alkyldiyl or (C₂-C₆) alkyleno.

Claim 74 (previously presented): The labeled nucleoside/tide or nucleoside/tide analog of claim 72 wherein:

an alkyldiyl or alkyleno bridge formed by taking R² together with R³ or R³, R⁷ together with R⁶ or R⁶, or R⁴ together with R³ or R³, is ethano, propano, 1,1-dimethylpropano or 1,1,3-trimethylpropano;

an aryleno bridge formed by taking R^1 together with R^2 is benzo or naphtho; an alkyldiyl or alkyleno bridge formed by taking R^3 together with R^3 , or R^6 together with R^6 , is butano;

an alkyldiyl or alkyleno bridge formed by taking R^5 together with R^6 or $R^{6'}$; is ethano, propano, 1,1-dimethylethano, 1,1-dimethylpropano and 1,1,3-trimethylpropano; and

an aryleno bridge formed by taking R^{10} , R^{11} , R^{12} and R^{13} together, or R^{18} , R^{19} , R^{20} and R^{21} together, is benzo.

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Claim 75 (previously presented): The labeled nucleoside/tide or nucleoside/tide analog of claim 71 in which Z^1 is phenyldiyl.

Claim 76 (previously presented): The labeled nucleoside/tide or nucleoside/tide analog of Claim 71 in which L' is selected from: —C=C-CH₂—and —C=C-CH₂—0-CH₂CH₂—

Claim 77 (previously presented): The labeled nucleoside/tide or nucleoside/tide analog

of Claim 71 in which L' is: $-C \equiv C - CH_2 - O - CH_2CH_2 - N - R^{48} - W$ wherein R^{47} is hydrogen or $(C_1 - C_6)$ alkyl, and R^{48} is selected from:

wherein each r is independently an integer from 1 to 6; R^{49} is hydrogen, (C_1-C_6) alkyl, or an amino acid side chain; and ϕ is phenyldiyl or substituted phenyldiyl.

Claim 78 (previously presented): The labeled nucleoside/tide or nucleoside/tide analog of claim 71 in which Y is selected from the structures:

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(Y-31a)

$$(Y-25a)$$

$$\begin{array}{c}
N \\
R^9
\end{array}$$

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$$(Y-39a) \qquad \qquad \begin{array}{c} H_2N \\ \\ R^9 \end{array}$$

$$(Y-41a)$$
 N
 R^9

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$$(Y-43a) \qquad \stackrel{H}{\underset{R^9}{\bigvee}} \qquad \stackrel{H}{\underset{N}{\bigvee}} \qquad$$

$$(Y-45a)$$
 N^{\oplus} , and

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Claim 79 (previously presented): The labeled nucleoside/tide or nucleoside/tide analog of claim 71 wherein R^{22} , R^{23} , R^{25} , and R^{26} are each hydrogen.

Claim 80 (previously presented): The labeled nucleoside/tide or nucleoside/tide analog of claim 71 which comprises the structure:

or a salt thereof.

Claim 81 (previously presented): The labeled nucleoside/tide or nucleoside/tide analog of Claim 80 in which L' is selected from: —C≡C−CH₂— and —C≡C−CH₂—O−CH₂CH₂—

Claim 82 (previously presented): The labeled nucleoside/tide or nucleoside/tide analog of claim 70 comprising the formula:

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wherein:

Y is a rhodamine-type parent xanthene ring attached to the illustrated phenyl group at the xanthene C9 carbon;

 R^{22} , R^{23} , R^{25} , and R^{26} are independently selected from hydrogen and (C₁-C₆) alkyl;

 R^{24} , when taken alone, is (C_1-C_6) alkyl, or when taken together with R^{24} is (C_4-C_{10}) alkyldiyl, (C_4-C_6) alkyleno, (C_4-C_6) heteroalkyldiyl or (C_4-C_6) heteroalkyleno;

 R^{24} , when taken alone, is (C₁-C₆) alkyl, or when taken together with R^{24} is (C₄-C₁₀) alkyldiyl, (C₄-C₆) alkyleno, (C₄-C₆) heteroalkyldiyl or (C₄-C₆) heteroalkyleno;

n is 1, 2, or 3;

S is sulfur;

Z is (C_1-C_{12}) alkyl, (C_1-C_{12}) alkyl substituted with one or more of the same or different W^1 groups, (C_5-C_{20}) aryl, and (C_5-C_{20}) aryl substituted with one or more of the same or different W^2 groups;

 $W^{1} \text{ is selected from } -X, -R, =O, -OR, -SR, =S, -NRR, =NR, -CX_{3}, -CN, -OCN, -SCN, -NCO, -NCS, -NO, -NO_{2}, =N_{2}, -N_{3}, -S(O)_{2}O^{-}, -S(O)_{2}OH, -S(O)_{2}R, -C(O)R, -C(O)X, -C(S)R, -C(S)X, -C(O)OR, -C(O)O^{-}, -C(S)OR, -C(O)SR, -C(S)SR, -C(O)NRR, -C(S)NRR and -C(NR)NRR;$

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 W^2 is selected from -R, -OR, -SR, -NRR, $-S(O)_2O^-$, $-S(O)_2OH$, $-S(O)_2R$, -C(O)R, -C(O)X, -C(S)R, -C(S)X, -C(O)OR, $-C(O)O^-$, -C(S)OR, -C(O)SR, -C(S)SR, -C(O)NRR, -C(S)NRR and -C(NR)NRR;

L is a selected from a bond, (C_1-C_{12}) alkyldiyl, (C_1-C_{12}) substituted alkyldiyl, (C_6-C_{26}) arylalkyldiyl, -O-, -S-, -NR-, -C(O)O-, -C(O)NR-, $-NRS(O)_2-$, -NR-NR-, -NRC(O)O-, and -NRC(O)NR-;

 R^{46} is selected from -C(O)NR-, -C(O)O-, and -C(O)S,

L' is selected from (C_1-C_{20}) alkyldiyl, (C_1-C_{20}) heteroalkyldiyl, (C_1-C_{20}) alkyleno, (C_1-C_{20}) heteroalkyleno, (C_6-C_{26}) arylalkyldiyl, (C_5-C_{20}) heteroarylalkyldiyl, and substituted forms thereof; and

NUC is a nucleoside/tide or nucleoside/tide analog;

each R is independently selected from hydrogen, (C₁-C₆) alkyl, (C₅-C₂₀) aryl, (C₆-C₂₀) arylalkyl, and (C₆-C₂₀) arylaryl; or when two R groups on the same nitrogen atom are taken together, those two R groups are (C₄-C₁₀) alkyldiyl or (C₄-C₁₀) alkyleno; and each X is independently a halogen.

Claim 83 (previously presented): The labeled nucleoside/tide or nucleoside/tide analog of Claim 82 in which Y is selected from:

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$$(Y-2b) \qquad \begin{array}{c} R^{14} \\ R^{15} \\ R^{13} \\ R^{12} \\ R^{11} \\ R^{10} \\ R^{8} \\ R^{9} \\ R^{1} \\ R^{21} \\ R^{20} \\ R^{19} \end{array}$$

$$(Y-3b) \qquad \begin{array}{c} R^{15} \\ R^{6} \\ R^{8} \\ R^{9} \\ R^{1} \end{array}$$

$$(Y-4b) \qquad R^{15} \qquad R^{6'} \qquad R^{5} \qquad R^{4} \qquad \bigoplus_{R^{16}} R^{16} \qquad R^{17} \qquad R^{18} \qquad R$$

$$(Y-1c) \qquad \qquad R^{6} \qquad \qquad R^{5} \qquad \qquad R^{3} \qquad \qquad R^{$$

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(Y-3c)
$$R^{14}$$
 R^{15} $R^{6'}$ R^{5} R^{5} R^{16} R^{17}

$$(Y-4c) \qquad R^{14} \qquad R^{15} \qquad R^{6'} \qquad R^{5} \qquad R^{5} \qquad R^{16} \qquad R^{16} \qquad R^{17} \qquad R^{18} \qquad R^{$$

wherein the dashed line at the nitrogen or C4 atom indicates the point of attachment of L.

Claim 84 (previously presented): The labeled nucleoside/tide or nucleoside/tide analog of claim 82 wherein:

an alkyldiyl or alkyleno bridge formed by taking R^2 together with R^3 , R^4 together with R^3 , R^5 together with R^6 , or R^7 together with R^6 , is ethano, propano, 1,1-dimethylpropano or 1,1,3-trimethylpropano; and

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an aryleno bridge formed by taking R^{10} , R^{11} , R^{12} and R^{13} together or R^{18} , R^{19} , R^{20} and R^{21} together is benzo.

Claim 85 (previously presented): The labeled nucleoside/tide or nucleoside/tide analog of claim 82 in which L is selected from phenyldiyl and naphthyldiyl.

Claim 86 (previously presented): The labeled nucleoside/tide or nucleoside/tide analog of claim 82 in which L is $-(CH_2)_i-\phi$ — where i is an integer from 1 to 6 and ϕ is phenyldiyl or naphthyldiyl.

Claim 87 (previously presented): The labeled nucleoside/tide or nucleoside/tide analog of claim 82 in which Z is selected from phenyl, benzyl, naphthyl, pyridyl and purinyl.

Claim 88 (previously presented): The labeled nucleoside/tide or nucleoside/tide analog of Claim 82 in which L' is selected from: —C≡C—CH₂— and —C≡C—CH₂—O—CH₂CH₂—

Claim 89 (previously presented): The labeled nucleoside/tide or nucleoside/tide analog

of Claim 82 in which L' is: $-C \equiv C - CH_2 - O - CH_2CH_2 - N - R^{48} - W$ wherein R^{47} is hydrogen or $(C_1 - C_5)$ alkyl, and R^{48} is selected from:

wherein each r is independently an integer from 1 to 6, R⁴⁹ is hydrogen, (C₁-C₆) alkyl, or

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an amino acid side chain; and ϕ is phenyldiyl or substituted phenyldiyl.

Claim 90 (previously presented): The labeled nucleoside/tide or nucleoside/tide analog of claim 82 wherein R^{22} , R^{23} , R^{25} , and R^{26} are each hydrogen.

Claim 91 (previously presented): The labeled nucleoside/tide or nucleoside/tide analog of claim 82 in which Y is selected from the group consisting of:

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wherein the dash at the nitrogen or C4 atom indicates the point of attachment of L.

Claim 92 (previously presented): The labeled nucleoside/tide or nucleoside/tide analog of Claim 82 which has the structure:

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Claim 93 (previously presented): The labeled nucleoside/tide or nucleoside/tide analog of Claim 92 in which L' is selected from: —C≡C−CH₂— and —C≡C−CH₂—O−CH₂CH₂—

Claim 94 (previously presented): The labeled nucleoside/tide or nucleoside/tide analog of Claim 70 further comprising a donor dye or an acceptor dye whereby the rhodamine dye and the donor dye or acceptor dye form an energy-transfer dye pair.

Claim 95 (previously presented): The labeled nucleoside/tide or nucleoside/tide analog of Claim 94 wherein the donor dye or acceptor dye is a fluorescein, rhodamine, cyanine, phthalocyanine or squaraine.

Claim 96 (previously presented): The labeled nucleoside/tide or nucleoside/tide analog

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of Claim 94 wherein the donor dye or acceptor dye is 4'-aminomethyl-6-carboxyfluorescein and the 4'-aminomethyl-6-carboxyfluoroscein is covalently attached to the rhodamine dye by a linker.

Claim 97 (previously presented): The labeled nucleoside/tide or nucleoside/tide analog of Claim 96 wherein the aminomethylfluorescein is further covalently attached by a linker L' to the nucleosase B of the nucleoside/tide or nucleoside/tide analog.

Claim 98 (previously presented): The labeled nucleoside/tide or nucleoside/tide analog of Claim 70 which is enzymatically incorporatable.

Claim 99 (previously presented): The labeled nucleoside/tide or nucleoside/tide analog of Claim 70 which is a terminator.

Claim 100 (previously presented): The labeled nucleoside/tide or nucleoside/tide analog of Claim 70 which is enzymatically extendable.

Claim 101 (previously presented): The labeled nucleoside/tide or nucleoside/tide analog of Claim 70 wherein R^{71} and R^{70} are hydrogen.

Claim 102 (previously presented): The labeled nucleoside/tide or nucleoside/tide analog of Claim 70 wherein R⁷¹ and R⁷⁰ are hydroxyl.

Claim 103 (previously presented): The labeled nucleoside/tide or nucleoside/tide analog of Claim 70 wherein R⁷¹ is hydroxyl, and R⁷⁰ is hydrogen.

Claim 104 (previously presented): The labeled nucleoside/tide or nucleoside/tide analog of Claim 70 in which nucleobase B is selected from adenine, 7-deazaadenine, cytosine, guanine, 7-deazaguanine, thymine and uracil.

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Claim 105 (currently amended): A labeled polynucleotide or polynucleotide analog comprising a rhodamine dye conjugated to a nucleoside/tide or nucleoside/tide analog, wherein the rhodamine is a rhodamine-type parent xanthene having attached to the xanthene C9 carbon a phenyl group that is further substituted with an ortho carboxy or ortho sulfonate group or a salt thereof, one to three substituted or unsubstituted aminopyridinium groups and a substituted or unsubstituted alkylthio[[,]] or arylthio group.